#17 appeal Brief
N Chapman 9-21-01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	
Toshiaki Kanemitsu et al	Art Unit: 3726
Appln. No. : 09/157,318	Ex: E. Compton
Filed : September 21, 1998	
For : METHOD OF MANUFACTURING AN ANNULAR MEMBER.....WALL	

REVISED BRIEF ON APPEAL

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

Pursuant to the provisions of 37 CFR 1.192, submitted herewith is Applicant/Appellants' Brief on Appeal.

REAL PARTY IN INTEREST

The real party interest, that is the party that holds the entire right, title and interest in this application is the assignee, Kabushiki Kaisha Kanemitsu.

RELATED APPEALS AND INTERFERENCES

No appeal or interference is pending in any related application.

STATUS OF CLAIMS

Claims 1-6 and 8 are finally rejected. No. claims are allowed

STATUS OF AMENDMENTS

The final rejection was made on January 25, 2001, and a Notice of Appeal was filed on April 24, 2001.

An Amendment is being submitted herewith to correct the dependency of claim 8.

SUMMARY OF THE INVENTION

(page and line references are to the specification)

The present invention relates to a method of manufacturing an annular member from a disc-shaped metal sheet material (page 1, lines 8-9).

Figs. 1-5 show the individual steps of the method, while Figs. 6-10 show the progression in the shaping of the outer periphery of the sheet metal material (page 8, lines 8-12).

We start with a flat metal disc-shaped material 10 drawn to form a swelling portion 11, a flange portion 12, a stepped portion 14 and a hole 13 in the swelling portion 11 (page 8, lines 15-18 and 23). A portion referred to as the outer periphery 15 of the flange portion 12 is operated upon in the various steps to form the final wall 21 (page 8, lines 24 and 25).

The outer periphery is shaped by the forming roller 300 (Fig. 1B) to form the chevron portion 16 (Fig. 1B and Fig. 6) (page 10, lines 3-5). In forming the chevron portion 16, the swelling portion 11, flange portion 12 and stepped portion 14 are held firm by the dies 100 and 200 (page 9, lines 5-10). The chevron portion 16 is then formed by a forming roller 400 into a substantially circular portion 17 (Fig. 2B and Fig. 7) (page 10, lines 19 and 20). The substantially circular portion 17 is then formed by a forming roller 500 into a preliminary peripheral wall 18 (Fig. 3B and Fig. 8) (page 11, lines 13-16). The preliminary peripheral wall 18 is then reshaped by forming roller 600 into a rough peripheral wall 19 (Fig. 4B and Fig. 9) (page

12, lines 10 and 15-16). Finally, the end surfaces 19a, 19a of the rough peripheral wall 19 are flattened (Fig. 10) by the forming roller 700 (page 13, lines 10-14).

The peripheral wall 21 (Fig. 10) extends on either side of the flange portion 12. The shaping of the outer periphery 15 through its various stages is successful because, inter alia, the stepped portion 14.

ISSUES

There is a single issue presented in this appeal, namely, are claims 1-6 and 8 unpatentable under 35 USC 103(a) over Deggau et al in view of Kanemitsu et al.

GROUPING OF THE CLAIMS

Claim 1 is in independent form, while claims 2-6 and 8 are in dependent form depending on claim 1 (claims 2, 4 and 8), claim 2 (claim 3), claim 5 (claim 4) and claim 6 (claim 5).

The patentability of claims 2-6 and 8 will depend on the patentability of claim 1.

ARGUMENT

(1)

Deggau et al does not teach a non-processed portion which is formed first

Deggau et al discloses a method of fabricating a brake shoe starting from a sheet metal blank 1. The sheet metal blank 1 is clamped between the tool parts 2, 2^1. The outer edge is then subjected to the action of the roller 21 in a single step to form a flange. The progression from flat edge of the plate to a flange is a single application of the roller 21. This occurs with the flat plate being flat.

There is no teaching in Deggau et al of forming a stepped portion prior to forming

the flange, nor of what benefit such a stepped portion would be.

(2)

Kanemitsu et al does not teach a stepped portion formed before the radially pressing step

In Kanemitsu et al a flange is formed from a blank sheet without first effecting the formation of a stepped portion. A stepped portion is seen as part of the final product in Fig. 4, although it is not clear how it and the flange were formed. The embodiment of Fig. 4 is identified as "a section view of another example of the entire shape of the steel plate. How it got there is not clear. Reference to the remainder of the specification is of no help because it deals with the formation of the outer flange.

The importance of the stepped portion cannot be overemphasized. It provides stability to the formation operation of the flange by increasing the ability of the blank sheet, which is now provided with a stepped portion, to withstand radial pressing forces applied to the outer periphery 15 as it is being formed into its various shapes and ultimately into the peripheral wall 21. A radial force applied to a flat sheet must be perfectly centered to achieve optimum resistance. With a stepped portion, it need not be. A range of off-centered loading is possible and still achieve optimum results. This is the advantage achieved with a stepped portion. The stepped portion need not be retained after formation of the peripheral wall 21, but it must be present during its formation. This is clearly recited in claim 1.

(3)

No basis for combination of references

Nothing in either Deggau et al or Kanemitsu et al suggests their combination, ***In re***

Gorman, 18 USPQ2d 1885 (Fed. Cir. 1991). The suggestion need not be present in precise words, but it must be evident from the entirety of the disclosure in the references taking into account the level of skill in the art, ***In re Oetiker***, 24 USPQ2d 1443 (Fed. Cir. 1992).

When one considers that a stepped portion is shown but not disclosed . When one considers that there is no teaching to use the stepped portion during formation of the outer flange. And when one considers that the importance of such a stepped peripheral wall is not mentioned at all, then it easily follows that unpatentability under 35 USC 103 cannot be sustained.

Claim 1 is therefore patentable over the combination of Deggau et al and Kanemitsu et al

Claims 2 and 5 define the formation of the arc-shaped outer wall as a preliminary step. The formation of this preliminary step is not disclosed in either Deggau et al or Kanemitsu et al.

Claims 3, 4 and 8, like claims 1, 2 and 5 also patentably distinguish over the Deggau et al and Kanemitsu et al patents

SUMMARY

Neither Deggau et al or Kanemitsu et al propose in any way the use of a stepped portion of the metal plate for use in the formation of the final peripheral wall. Accordingly, claims 1-6 and 8 should be allowed.

The Board is urged to reverse the examiner and direct the examiner to allow claims 1-6 and 8.

Respectfully submitted,

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APPENDIX

1. A method of manufacturing an annular member from a disc-shaped metal sheet material defining an outer periphery, comprising the steps of:

forming the disc-shaped metal sheet to have a non-processed portion including a stepped portion;

rotating the disc-shaped metal sheet material;

pressing the outer periphery of the metal sheet material in a radially inward direction, while continuing to rotate the metal sheet material;

thickening the outer periphery axially and without buckling by said pressing;

protruding the outer periphery to either side of the non-processed portion of the metal sheet material; and

forming a peripheral wall protruding to either side of the non-processed portion.

2. The method of manufacturing an annular member according to claim 1, wherein, in an intermediate phase of the step of thickening the outer periphery of the metal sheet material axially, a preliminary peripheral wall is formed so that the outer periphery may have an axial center portion which is more outwardly swelled than both axial ends, so as to be arc-shaped.

3. The method of manufacturing an annular member according to claim 2, wherein, in advance of forming the preliminary peripheral wall, the outer periphery of the metal sheet material is formed so that a sectional face thereof may have a substantially circular shape.

4. The method of manufacturing an annular member according to claim 1, further comprising the steps of:

holding the non-processed portion of the metal sheet material between a pair of dies;

producing said rotation of the metal sheet material with the dies;

producing said pressing by a forming surface of a forming roller against the outer periphery of the metal sheet material; and

rotating the forming roller together with the metal sheet material.

5. The method of manufacturing an annular member according to claim 4, wherein, in an intermediate phase of the step of thickening the outer periphery of the metal sheet material axially, a preliminary peripheral wall is formed so that the outer periphery may have an axial center portion which is more outwardly swelled than both axial ends, so as to be arc-shaped.

6. The method of manufacturing an annular member according to claim 5, further comprising the step of: finishing the preliminary peripheral wall protruding the either side of the non-processed portion in a predetermined shape.

8. The method of manufacturing an annular member according to claim 1, wherein the stepped portion is formed before said pressing step.